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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,967	02/08/2007	Hanns-Ingo Maac	DE030401	9943
24737 7590 03/26/2010 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
AKHAVANNIK, HADI				
ART UNIT		PAPER NUMBER		
2624				
MAIL DATE		DELIVERY MODE		
03/26/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/595,967

**Applicant(s)**

MAAC ET AL.

**Examiner**

HADI AKHAVANNIK

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because they lack descriptive labels. Figures 1 and 2 contain "C\_map", "Da", "I", etc... It is recommended that descriptive labels be used for figures 1 and 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. Figure 1 is objected to because the boxes in figure 1 are not numbered outside the box. Figure 2, for example, properly numbers each box. Appropriate correction is required.

3. Figure 3 contains parts a) through h). The specification refers to figure 3f in paragraph 44. It is recommended that figure 3 be split into parts a)-h). It is recommended that the figures be consistent with the specification since the specification refers to figure 3f in paragraph 44, which does not currently exist.

### ***Specification***

#### **Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
  - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

4. In the present case the specification lacks headings. Additionally there is no cross reference to the foreign priority application or the PCT application. Appropriate correction is required.

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract uses "said".

Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13 is rejected under 35 U.S.C. 112 first and second paragraphs as attempting to define a product (i.e., machine or apparatus) entirely by virtue of its function, in the absence of any recited structure.

Products must distinguish over the prior art in terms of their structure (or structure + structure's function when claimed functionally) rather than function alone (MPEP 2114). Therefore, an "apparatus" not having structural limitations fails to "particularly point out and distinctly claim ..." the invention in accordance with 35 U.S.C. 112, 2<sup>nd</sup> paragraph.

Furthermore, while the specification disclosure may be enabling for a plurality of structural elements performing the claimed functions [1], the specification does not

reasonably provide enablement for a single structural element (or no structural elements) performing all of the claimed functions. That is, given the claim in question, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims ("A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph" because a single means claim covers "every conceivable means for achieving the stated purpose" and "the specification disclosed at most only those means known to the inventor" - *MPEP*, at *paragraph 2164.08(a)*).

Applicant is advised to define the apparatus by virtue of the individual structural element that serve to perform the individual functions recited in the corresponding method claim.

[1] Even when an apparatus is disclosed as being computer implemented (e.g., software implemented on hardware), the requirement remains that there be some structure recited in the body of the claim (e.g., a processor and a memory storing a program which when implemented performs the method steps). For purposes of "means plus function" language, individual disclosed steps corresponding to computer program elements operating on a processor (e.g., inputting, filtering, detecting and resolving) may be considered as separate means (*Dossel*, 115 F.3d at 946–47, 42 USPQ2d at 1885).



***Claim Objections***

Claim 11 is objected to because of the following informalities: Claim 11 refers to step b) instead of step (b). Appropriate correction is required.

***Examiner's Note***

The examiner has removed the parenthetical information from the claims to improve readability of the office action. Also please note that the information inside the parenthetical does not further limit the claim.

Claims 1-2, 4, 10-11, and 13 recite "potentially defective" in quotations. The examiner believes that using the phrase "potentially defective" as a label is a design choice and any differences in the wording between the prior art and the claims is not patentably distinguishable.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-7 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Eck et al. (2001/0038706, referred to as "Eck" herein).

Regarding claim 1, Eck discloses a method for correcting defects in X-ray images (R) with the aid of a defect map (see abstract), comprising the steps:

a) classification of picture elements on an X-ray image which has been pre-corrected with the current defect map (see paragraph 47 which discloses using a correction table that is used to "pre-correct" the image) as "potentially defective" if their value differs from the interval of the picture element values in a neighborhood assigned to it by a specified degree (see paragraph 15 which disclose a predetermined tolerance threshold, and the saving of the picture elements, thus classified in a candidate map (see paragraphs 10 and 38, which discloses defective sensor elements are saved);

(b) refreshing the defect map with all the picture elements (p) from the candidate map which have been classified as "potentially defective" in several X-ray images and which also fulfill other criteria, where appropriate (see paragraph 15 which disclose replacing the correction table when appropriate);

(c) correction of further X-ray images with the aid of the refreshed defect map (the abstract discloses that this is done).

Regarding claim 13, see the rejection of claim 1 and paragraph 35 which discloses a system.

Regarding claim 4, Eck discloses the value of a picture element in an X-ray image classified as "potentially defective" is corrected in dependence on the values of its neighboring picture elements (see paragraph 19 which discloses using filters that are based on neighboring pixels).

Regarding claim 5, Eck discloses that an X-ray image is corrected once again on the basis of the current defect map and the candidate map (paragraph 24 which discloses correcting x-ray images based on the defect recognition).

Regarding claim 6, Eck discloses that the neighborhood assigned to a picture element is defined such that it permits the detection of mutually neighboring defective picture elements (see paragraph 25 which discloses that the neighborhood pixels can be taken from rows and columns. This will include pixels that are mutually neighboring).

Regarding claim 7, Eck discloses that the neighborhood assigned to a picture element comprises those picture elements from a predefined environment whose picture element value lies at least a specified number  $n$  of orders of magnitude below the maximum and/or minimum for all the picture element values in the entire environment (see paragraph 52 which discloses a deviation value).

Regarding claim 9, Eck discloses that the picture elements correspond to individual pixels or groups of pixels, in particular to rows or columns of pixels (see paragraph 25).

Regarding claim 10, Eck discloses that a picture element is classified as "potentially defective" if its value ( $W(p)$ ) is below the minimum or above the maximum of the values of the picture elements in its neighborhood (see paragraph 15 which discloses thresholds and the rejection of claim 6 discloses that this is based on neighboring pixels).

Regarding claim 11, Eck discloses that the specified criteria in step b) comprise the following: that the picture element has at least been examined in a specified number

of X-ray images (see paragraph 15 which discloses checking each subsequent x-ray image. This reads on examined in a specified number of x-ray images)

Regarding claim 12, Eck discloses that the defect map is refreshed continuously with the aid of the X-ray images (see paragraph 12).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eck in view of Conrads et al. (6246746, referred to as "Con" herein).

Regarding claim 8, Eck does not explicitly disclose using imaging parameters for image correction but he does disclose all other features of claim 2 in the rejection of claim 1. Also see paragraph 29 which disclose using different offset images that would apply different defect maps when necessary.

Con discloses using imaging parameters for x-ray image correction in column 5 lines 14-24. These parameters are used when adjusting signal levels as explained in column 5 lines 30-40.

It would have been obvious at the time of the invention to one of ordinary skill in the art to include in Eck the imaging parameters using means as taught by Con. The reason for the combination is because it makes for a more robust system that is able to correct x-ray images using the parameters of the imaging system.

Regarding claim 3, Con disclose parameters that relate to beam quality (see column 5 lines 15-20 which disclose peak radiation intensity).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eck in view of Lin et al. (6747697, referred to as "Lin" herein).

Regarding claim 8, Eck does not explicitly disclose excluding pixels that are outside of a range.

Lin discloses that the classification in step a) excludes those picture elements for whose environment the values of the picture elements lie outside a predefined range (see column 6 lines 25-62).

It would have been obvious at the time of the invention to one of ordinary skill in the art to include in Eck the pixel excluding means as taught by Lin. The reason for the combination is to allow the system to exclude meaningless pixels from the kernel to improve the quality of the filter.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Uppaluri et al. (2003/0215120) discloses image parameters in paragraph 57-60.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HADI AKHAVANNIK whose telephone number is (571)272-8622. The examiner can normally be reached on 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 2624